

Appl. No. 10/665,028

Amdt. Dated October 25, 2005

Reply to Office Action of August 12, 2005

REMARKS

This is a full and timely response to the non-final Office action mailed August 12, 2005. Reexamination and reconsideration in view of the foregoing amendments and following remarks is respectfully solicited.

Claims 1-9 are pending in this application, with Claims 1, 5, 6, and 7, being the independent claims. Claims 1, 2, 6, 7, and 9 have been amended. No new matter is believed to have been added.

Rejections Under 35 U.S.C. § 112

The Examiner rejected claims 7-9 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner stated that in claim 7, line 1, "nozzle laser" should be --nozzle for laser--. The Examiner further stated that claims 8 and 9 depend on claim 7.

Claim 7 has been appropriately amended.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 7-9 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Rejections Under 35 U.S.C. § 102

The Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by DE10035622A1.

Claim 1 has been amended to include a detachable housing that circumscribes the outer nozzle to define a channel around the outer nozzle. Specifically, claim 1 includes the limitation "a housing detachably coupled to the main body and circumscribing the outer nozzle in spaced apart relationship to define a circumscribing shield gas flow channel about the outer nozzle."

DE10035622A1 does not disclose a detachable housing that circumscribes an outer nozzle to define a channel around the outer nozzle. DE10035622A1 discloses a

Appl. No. 10/665,028

Amdt. Dated October 25, 2005

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welding and powder coating head with a central channel 11 and a conical powder channel 15, which the central channel 11 coaxially surrounds. The welding head also includes powder supply means 34 and 35 for bringing powder into an inlet range 13 of the powder channel 15. (Abstract) DE10035622A1 makes no mention of a detachable housing that circumscribes the outer nozzle to define a channel around the outer nozzle.

Therefore, claim 1 is not anticipated by DE10035622A1 because claim 1 includes a limitation that is not disclosed in DE10035622A1.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claim 1 35 U.S.C. § 102(b) as being anticipated by DE10035622A1.

Rejections Under 35 U.S.C. § 103

The Examiner rejected claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over DE10035622A1 as applied to claim 1 above, and further in view of Buongiorno.

Claims 2 and 3 are dependent on claim 1 and should be allowable for at least the same reasons as claim 1 stated above.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 2 and 3 under 35 U.S.C. § 103(a) as being unpatentable over DE10035622A1 as applied to claim 1 above, and further in view of Buongiorno.

The Examiner rejected claim 4 under 35 U.S.C. § 103(a) as being unpatentable over DE10035622A1 in view of Buongiorno as applied to claim 2 above and further in view of Patent Application Publication No. US2004/0099643A1 ("FABBRO").

Claim 4 is dependent on claim 1 and should be allowable for at least these same reasons as claim 1 stated above.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over DE10035622A1 in view of Buongiorno as applied to claim 2 above and further in view of FABBRO.

The Examiner rejected claims 5-9 under 35 U.S.C. § 103(a) as being unpatentable over DE10035622A1 in view of Buongiorno and further in view of FABBRO and further in view of Sullivan.

Appl. No. 10/665,028

Amdt. Dated October 25, 2005

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Claims 5, 6, and 7 include a detachable housing or nozzle that circumscribes a tip to define a channel around the tip. Specifically, claim 5 includes the limitation "a housing circumscribing the outer nozzle in spaced apart relationship to define a circumscribing shield gas flow channel about the outer nozzle." Claim 6 includes the limitation "a housing defining a third central open channel through which fluid may pass, the housing detachably attached to the main body." Claim 7 includes the limitation "an outer nozzle detachably detached to the nozzle, the outer nozzle separating the powder flow passage from the shield gas flow passage."

As previously mentioned, DE10035622A1 does not teach or suggest a detachable housing or nozzle that circumscribes a tip to define a channel around the tip.

Buongiorno does not teach or suggest a detachable housing or nozzle that circumscribes a tip to define a channel around the tip. Buongiorno teaches a laser powered laser cladding apparatus that projects a laser beam to impinge upon a metal workpiece to form a shallow puddle of liquid metal. (Abstract) As illustrated in figure 1, the laser powered metal cladding apparatus 10 includes a rear or upper unit 11 consisting of three elements 12-14 and a front or bottom unit 15 that consists of three other elements 16-18. Element 16 is an inner conical cup that is disposed within an outer conical cup 17 and is fixedly connected thereto by a brazing operation that employs solder rings in annular grooves 31-33 of the inner cup 16. An inner surface portion of the front unit 15 and a confronting outer surface portion at the front portion of the rear unit 11 are spaced slightly from each other and cooperate to perform an annular conical passage 35 through which metal powder for cladding is delivered to outlet opening 23. (column 4, line 66 to column 5, line 3) The confronting inner and outer surfaces of the respective cups 17 and 16 cooperate to form an annular conical fluid jacket 40 which is accessible through two apertures 41 that extend transversely through outer cup 17. (column 5, lines 7-10) At the rear of fluid jacket 40 is a relatively large manifold 42 formed by an annular groove in the outer surface of inner cup 16 which is, for the most part, closed by outer cup 17. The large manifold 42 is provided with the gas entrances provided by two apertures 43 that extend through the side of the outer cup 17. (column 5, lines 11-15) Inert shielding gas for shielding the weld area and cooling the removable tip 18 is supplied to the large

Appl. No. 10/665,028

Amdt. Dated October 25, 2005

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manifold 42 through all four aperture 3 and flows through the four tubes 45 to the small manifold 46. Buongiorno thus teaches a manifold system for a welding head located between two fixed portions of an outer nozzle. Specifically, Buongiorno does not teach or suggest a detachable housing or nozzle that circumscribes a tip to define a chamber around the tip.

FABBRO teaches blowing gas onto a weld area by means of a ring nozzle to allow centripetal flow of the gas. (Abstract) As illustrated in figure 1, the nozzle 6 is made up of an inner tube 8 and an outer tube 9, which are concentric and therefore define a ring-shaped chamber 10 between them. (paragraph 0008) FABBRO makes no mention of a detachable housing or nozzle that circumscribes a tip to define a chamber around the tip.

Sullivan teaches an apparatus for subjecting a workpiece to the action of a laser beam. (Abstract) As shown in figures 3 and 5, the nozzles used in Sullivan do not include a housing circumscribing a tip of a nozzle. Specifically, Sullivan does not teach or suggest a detachable housing or nozzle that circumscribes a tip to define a chamber around the tip.

Therefore, claims 5, 6, and 7 are patentable over DE10035622A1, Buongiorno, FABBRO, and Sullivan because claims 5, 6, and 7 include limitations that are not taught or suggested in DE10035622A1, Buongiorno, FABBRO, and Sullivan.

Claims 8 and 9 are dependent on claim 7 and should be allowable for at least these same reasons as claim 7 stated above.

Applicant, accordingly, respectfully requests withdrawal of the rejections of claims 5-9 under 35 U.S.C. § 103(a) as being unpatentable over DE10035622A1 in view of Buongiorno and further in view of FABBRO and further in view of Sullivan.

Conclusion

Based on the above, independent Claims 1, 5, 6, and 7 are patentable over the citations of record. The dependent claims are also submitted to be patentable for the reasons given above with respect to the independent claims and because each recite features which are patentable in its own right. Individual consideration of the dependent claims is respectfully solicited.

Appl. No. 10/665,028

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The other art of record is also not understood to disclose or suggest the inventive concept of the present invention as defined by the claims.

Hence, Applicant submits that the present application is in condition for allowance. Favorable reconsideration and withdrawal of the objections and rejections set forth in the above-noted Office action, and an early Notice of Allowance are requested.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

If for some reason Applicant has not paid a sufficient fee for this response, please consider this as authorization to charge Ingrassia, Fisher & Lorenz, Deposit Account No. 50-2091 for any fee which may be due.

Respectfully submitted,

INGRASSIA FISHER & LORENZ

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